#31
W. Lawson
PATENT 8/13/04

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFACES
(Case No. MBHB 98,666)

In re Applicant of: John G. Fijolek et al.	
Serial No.: 09/217,347	Group Art Unit: 2611
Filed: 12/21/1998	Examiner: Koenig Andrew, Y
For: Method and System For Dynamic Service Registration In A Data communication System	

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APPELLANT'S BRIEF IN SUPPORT OF
THE APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES

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I. REAL PARTY IN INTEREST

The real party in interest for the above-referenced application is 3COM CORPORATION whose address is 350 Campus Drive, Marlborough, MA 01752-3064.

II. RELATED APPEALS AND INTERFERENCES

Appellants' legal representative is unaware of any other appeals or interferences that will directly affect, be directly affected by or have any bearing on the Board's decision in the pending appeal.

III. STATUS OF CLAIMS

The present application includes 36 pending claims, namely claims 31-66

Claims 31-66 stand finally rejected.

Claims 31, 32, 34. 35, 37-45, 47, 49-53 and 60-66 received a final rejection for anticipation under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,223,222 B1 grant to Fijolek et al.

Claims 33, 36, 46, 48, 54, 56-58 received a final rejection for obviousness under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,223,222 granted to Fijolek in view of the Examiner's Official Notice.

Finally, Claims 55 and 59 received a final rejection under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,223,222 granted to Fijolek in view of U.S. Patent No. 6,337,858 to Petty et al.

All of the finally rejected claims are appealed.

IV. STATUS OF AMENDMENTS

Claim 65 was amended for a grammatical error in a response to the Final Office Action mailed January 05, 2004. This amendment has not yet been entered. Support for the amendment

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may be found throughout the specification, and in particular on pages 8-10 and 64-77. No new matter has been added.

V. SUMMARY OF INVENTION

A. Background

In order to fully appreciate the novelty and nonobviousness of the invention, a background of session-based services, such as streaming video, steaming audio, and/or voice phone calls, that may be carried out during an active connection between two computers and/or users thereof, as they existed in art is discussed briefly. While such services may be provided in just about any communication network, the following describes the session-based services in the context of cable television systems adapted to provide data services (commonly referred to as "data-over-cable systems") in conjunction with a data communication network, such as the Internet. *See the background of the present application* at pages 2-7, and *the background of U.S. Patent No. 6,223,222 B1 granted to Fijolek et al* ("*Fijolek*") at cols. 1-3.

Cable television networks provide cable television services to a large number of subscribers over a large geographical area. *Background of the present application* at page 2, lines 6-10, and *the background of Fijolek* at col. 1, line 13-20. The cable television networks are generally interconnected using cables, such as coaxial cables or a Hybrid Fiber/Coaxial ("HFC") cable system. *Background of the present application* at page 2, lines 10-11, and *the background of Fijolek* at col. 1, line 20-22. Employing these interconnections along with specialized equipment (as discussed hereinafter), the cable television networks may be adapted to exchange data with the data network at rates from about 10 Mega-bits-per-second ("Mbps") to about 30+ Mbps. *See Background of the present application* at page 2, lines 11-13, and *the background of Fijolek* at col. 1, line 22-23

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Around the time of filing the present application, most Internet Service Providers ("ISPs") were only capable of connecting to the Internet via a serial telephone line from a Public Switched Telephone Network ("PSTN"). Such connections limit data transfer to rates from about 14,400 bps to 144,000 bps, all of which are much slower than the rates available from a data-over-cable system. *Background of the present application* at page 2, lines 16-20, and *the background of Fijolek* at col. 1, line 27-34.

The explosive growth of services provided via the Internet, such as the delivery and transmission of multi-media content including, for example, audio, video, graphics and text, created a demand for large amounts of bandwidth to support downloading and viewing requirements for such services. *Background of the present application* at page 2, lines 14-16 and lines 21-22, and *the background of Fijolek* at col. 1, line 25-27 and lines 36-38. The aforementioned data-over-cable systems possessed the infrastructure for filling this demand. *See generally the background of the present application* at pages 2-7, and *the background of Fijolek* at cols. 1-3.

The structural elements or structure of the data-over-cable systems for supplying such services, however, may assume different configurations based on the capabilities of the cable television network(s). *See the background of the present application* at pages 2-3, and *the background of Fijolek* at col. 1, line 51 to col. 2, line 16. For instance, some cable television networks provide only uni-directional service. *Background of the present application* at page 2, lines 9-10, and *the background of Fijolek* at col. 1, lines 51-53. That is, they support only a "downstream" cable data path. *Background of the present application* at page 2, lines 10-11, and *the background of Fijolek* at col. 1, lines 53-54.

A downstream data path is the flow of data from a cable system "headend" to a customer. *Background of the present application* at page 2, lines 11-12, and *the background of Fijolek* at col.

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1, lines 54-55. A cable system headend is a central location in the cable television network that is responsible for sending cable signals in the downstream direction. *Background of the present application* at page 2, lines 12-13, and *the background of Fijolek* at col. 1, lines 55-57.

To communicate in the reverse direction in a uni-directional system, a return data path (i.e., "upstream" data path) via a telephone network (i.e., a "telephony return") is typically used. *Background of the present application* at page 2, lines 13-15, and *the background of Fijolek* at col. 1, lines 57-61. A data-over-cable system with an upstream data path to telephony network is generally called a "data-over-cable system with telephony return." *Background of the present application* at page 2, lines 15-17, and *the background of Fijolek* at col. 1, lines 61-65. Other cable television networks provide two-way service using the cable television network, obviating the need for the telephony return. *See the background of the present application* at page 3, lines 9-13.

In the former case, an exemplary data-over-cable system with telephony return may include customer premise equipment (e.g., a customer computer), a cable modem (CM), a cable-modem-termination system (CMTS), a cable television network, a PSTN, a telephony-remote-access concentrator (TRAC), and a data network (e.g., the Internet). *Background of the present application* at page 2, line 18 to page 3, line 8, and *the background of Fijolek* at col. 1, line 66 to col. 2, line 7.. The CMTS and the TRAC together are typically called a "telephony return termination system." *Background of the present application* at page 2, line 18 to page 3, line 8, and *the background of Fijolek* at col. 1, line 66 to col. 2, line 7..

In the downstream direction, the CMTS receives data packets (i.e., information) from host servers coupled to the data network, and then transmits them to the customer premise equipment (CPE) via the cable television network and the CM. *Background of the present application* at page 3, lines 3-5, and *the background of Fijolek* at col. 2, lines 8-11. In the upstream direction, the CPE

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sends response data packets to the CM. *See the background of the present application* at page 3, lines 5-8, and *the background of Fijolek* at col. 2, lines 11-16. The CM, in turn, sends the response data packets upstream via the PSTN to the TRAC. *See the background of the present application* at page 3, lines 5-8, and *the background of Fijolek* at col. 2, lines 11-16. The TRAC then sends the response data packets back to the appropriate host server on the data network. *See the background of the present application* at page 3, lines 5-8, and *the background of Fijolek* at col. 2, lines 11-16

In the latter case, (i.e., without telephony return), the CPE sends response data packets to the CM. *See the background of the present application* at page 3, lines 8-11. The CM sends the data packets upstream via the cable television network to the CMTS without using the TRAC. *Id.* The CMTS, in turn, sends the data packets to appropriate host servers on the data network. *Id.* at page 3, lines 11-12.

Before the CPE can communicate with the host servers, the data-over-cable system, which acts as a conduit between the CPE and the host servers, must undergo an initialization process. *See the background of the present application* at page 3, lines 14-20, and *the background of Fijolek* at col. 2, lines 28-35. During the initialization process, the CM registers with the CMTS to allow the CM and CMTS exchange data over the cable television connection from the data network. *See the background of the present application* at page 3, lines 14-20, and *the background of Fijolek* at col. 2, lines 28-35. During registration, the CM forwards configuration information (that it previously received in a configuration file) to the CMTS as part of a registration request message. *See the background of the present application* at page 3, lines 14-20, and *the background of Fijolek* at col. 2, lines 28-35. Through one or more registration reply messages and/or subsequent registration request messages, the CMTS reserves or otherwise allocates communication system resources,

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such as bandwidth, to allow the CM and CMTS to exchange data for carrying out subsequent data communication services. *See the background of the present application* at page 3, lines 14-20, and *the detailed description of Fijolek* starting at col. 14. In addition to allocating communication system resources for itself, the CM also helps initialize and register any attached CPE with the CMTS for carrying out the subsequent data communication services, including session-based services, using the CPE. *See the background of the present application* at page 3, lines 14-20, and *the detailed description of Fijolek* at col. 2, lines 28-35.

A session-based service is a service that may be carried out between a CPE (or CM) and a host server during a session. *See the background and detailed description of the present application* starting at page 3, and *the detailed description of Fijolek* starting at col. 14. This session is the active connection between the CM and CMTS that results from the initialization and registration of the CM with the CMTS. *See the background and detailed description of the present application* starting at page 3, and *the detailed description of Fijolek* starting at col. 14. The session ends when CM and/or CMTS loose connection or otherwise disconnect after initialization and registration. *See the background and detailed description of the present application* starting at page 3, and *the detailed description of Fijolek* starting at col. 14. In addition, communication system resources for a session-based service, such as bandwidth, are allocated during initialization of the data-over-cable system. *See the background and detailed description of the present application* starting at page 3, and *the detailed description of Fijolek* starting at col. 14.

By way of non-limiting example, services with configurable parameters, such as Quality-of-Service ("QoS"), Class-of-Service ("CoS"), Type-of-Service ("ToS") parameters may be session-based services. Such services may include Voice over Internet Protocol ("VoIP") services, Asynchronous Transport Mode ("ATM") services, Frame Relay services, Integrated Services Digital Network ("ISDN")

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services, and/or Asymetric Digital Subscriber Lines ("ADSL") services. *Background and detailed description of the present application* starting at page 3, and *the detailed description of Fijolek* starting at col. 14.

Allocating communication system resources when registering session-based services has several drawbacks. *See the background of the present application* at page 6, line 10 to page 7, line 6. For instance, a CM requires a new session for each voice call (e.g., a VoIP call). *Id.* at page 6, lines 13-14. The session, as noted above, is created once during the initialization and registration process, and is not changed as long as the network device is "powered on" (i.e., so long as the CM and CMTS remain connected). *Id.* at page 6, lines 11-14. One solution to this problem is to power cycle the CM (i.e., power off the CM and then power it back on) for each session. *Id.* This solution, however, would be a major inconvenience for a user if the user had to do so for each voice call.

An alternative solution, as described in *Fijolek*, is to allow a network device, such as the CMTS, to register and allocate communication system resources until the communication system resources are depleted regardless of whether or not another network device is actually using the resources for a requested service (i.e., a session-based service or otherwise). *Id.* at page 6, lines 10-19. Since the CMTS typically manages connections to tens of thousands of CMs, allocating communication system in this way for each CM and associated CPE amplifies the amount of unused communication system resources and reduces the overall efficiency of the communication system. *Id.* This solution is a waste of communication system resources, and prevents other network devices from using resources that are allocated, but are not currently being used. *Id.*

Furthermore, authentication (i.e., verifying the identity of a user who is logging in), authorization (i.e., verifying the right or permission of the user for using the system), and/or accounting (i.e., the logging of actions performed by the user on the system) are usually required

when a session is created. *Id.* at page 6, lines 21-21. If a requested service requires additional service agreements (i.e., contracts between a service provider and the user, which may specify the level of service that is expected during its term), then additional authentication, authorization or accounting has to be completed. *Id.* at page 7; lines 3-6. Unfortunately, the authentication, authorization or accounting is typically associated with a login request when initiating a session. *Id.* Therefore, requesting additional services after a session is established may (i) prevent authentication, authorization or accounting from being properly used, (ii) compromise the security of the data-over-cable system, and/or (iii) prevent the data-over-cable system from collecting revenues it is owed for providing access to the service. *Id.*

B. Claimed Invention

The Appellants' claimed invention in general relates to a new system and method for providing deferred session-based services in a data-communication system. *See, for example, page 8 and pages 64-88 of the present application.* Such deferred session-based services are different from session-based services in which communication system resources are registered with and allocated by a given network device during initialization. *See, for example, page 5 of the present application.* For deferred session-based services, communication system resources needed to carry out the services are registered with the given network device, but allocation of the communication system resources are deferred until the resources are needed. *See the present application* at, for example, pages 8-10, pages 64-88 (in particular to pages 64-69), and Figures 18-19.

By registering, but not allocating communication system resources, the presently claimed invention allows the given network device, which may be embodied as a CMTS, to establish a new session without requiring a power cycle or other re-initialization of another network device, such as a CM, CPE or the like. *Id.* Further, the communication system resources are not wasted by not

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allocating them during registration, thereby increasing the efficiency of the data-communication system. *Id.* As noted in the following fourteen aspects, the deferred session-based services provide the ability to dynamically activate (e.g., trigger on the fly) session-based services after initialization, and allow authentication, authorization or accounting to be dynamically used after the second network has already established a session. *Id.* In addition, deferred session-based services provide the ability to dynamically deactivate the deferred session-based services after a session has already been established between the network devices. *Id.*

In a first aspect, the claimed invention provides for receiving, during initialization, at the second network device a registration message from a first network device. *Id.* This registration message contains parameters associated with a plurality of capabilities of the first network device used for carrying out one or more deferred session-based services between (i) one or more service devices associated with the first network device (e.g., a voice-over-internet-protocol telephone) and (ii) a service server associated with the second network device (e.g., a RADIUS, VoIP, ATM, Frame Relay, ISDN, or ADSLserver). *Id.*

Each of the deferred session-based services comprises a service for which communication system resources are registered with, but not allocated by the second network device until the service is later activated. *Id.* Activation of the deferred session-based services may occur after a session is established between the first and second devices. *Id.*

The claimed invention also provides for configuring the second network device and the service server for the deferred session-based services. *Id.* In addition, the claimed invention provides for associating a deferred inactive-service identifier with one (or more) of the deferred session-based services. *Id.* The deferred inactive-service identifier is used to activate the corresponding deferred session-based service at the later time. *Id.*

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The claimed invention further provides for sending the deferred-inactive-service identifier to the first network device so that when the deferred session-based service is later activated, a communication link utilizing the parameters is established between the first and second network devices. *Id.*

In a second aspect, the claimed invention provides for receiving at the second network device from the first network device the deferred-inactive-service identifier. *Id.* at pages 8-10, pages 64-88 (in particular to pages 70-73), and Figures 20-22. In this aspect, the claimed invention also provides for activating the deferred session-based service between the session server and the service device in response to the deferred-inactive-service identifier, and then changing the deferred-inactive-service identifier to a deferred-active-service identifier. *Id.*

In a third aspect, the claimed invention provides for receiving the deferred-active-service identifier at the second network device from the first network device. *Id.* In this aspect, the claimed invention provides for deactivating, in responsive to the deferred-active-service identifier, the one or more of the deferred session-based services between the session server and the service device, and then changing the deferred-active-service identifier to a deferred-inactive-service identifier. *Id.*

In a fourth aspect, the claimed invention provides for sending, during initialization, from the first network device to the second network device a registration message containing parameters associated with a plurality of capabilities of the first network device. The parameters are used for carrying out at least one deferred session-based service between at least one of the service devices and the service server. *See the present application* at, for example, pages 8-10, pages 64-88 (in particular to pages 64-69), and Figures 18-19. The parameters may include any of quality-of-service, class-of-service, type-of-service or voice service parameters. *Id.*

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In addition, a deferred-inactive-service identifier is associated with the at least one deferred session-based service. *Id.* The deferred-inactive-service identifier is used to activate the at least one deferred session-based service at the later time. *Id.* The claimed invention also provides for receiving at the first network device from the second network device the deferred-inactive-service identifier. *Id.* When at least one deferred session-based services is later activated, a communication link utilizing the parameters is established between the first and second network devices. *Id.*

In a fifth aspect, the claimed invention provides for sending the deferred-inactive-service identifier to the second network device from the first network device. *Id.* at pages 8-10, pages 64-88 (in particular to pages 70-73), and Figures 20-22. Responsive to the deferred-inactive-service identifier, at least one of the deferred session-based services between the service server and the service device is activated; and the deferred-inactive-service identifier is changed to a deferred-active-service identifier. *Id.*

In a sixth aspect, the claimed invention provides for sending the deferred-active-service identifier to the second network device from the first network device. *Id.* Responsive to the deferred-active-service identifier, the deferred session-based services that are associated with the deferred-active-service identifier and occurring between the service server and the service device are deactivated. The deferred-active-service identifier is then changed to a deferred-inactive-service identifier. *Id.*

In a seventh aspect, the claimed invention provides for the second network device receiving a first message (e.g., a registration message) from the first network device. *Id.* at pages 8-10, pages 64-88 (in particular to pages 64-73), and Figures 18-22. The first message includes parameters, such as those noted above. *Id.*

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In this aspect, the claimed invention also provides for (i) extracting the parameters from the first message; (ii) creating a service-session profile for the at least one deferred session-based service, the service-session profile including one or more of the parameters; (iii) using the service-session profile to configure the service server and the second network device for the at least one deferred session-based service for activation at a later time; (iv) associating the service-session profile with the deferred-inactive-service identifier; and (v) sending the deferred-inactive-service identifier to the first network device in a second message (e.g., a registration response message). *Id.* When the deferred-inactive-service identifier is used to later activate the at least one deferred session-based service, a communication link utilizing the service session profile is established between the first and second network devices. *Id.*

In an eighth aspect, the claimed invention provides for receiving at the second network device from the first network device a service request to activate at least one of the deferred session-based services, the service request including the deferred-inactive-service identifier. *Id.* at pages 8-10, pages 64-88 (in particular to pages 70-73), and Figures 20-22. In this aspect, the claimed invention provides for activating, in response to the deferred-inactive-service identifier, at least one of the deferred session-based services between the service server and the service device, and changing the deferred-inactive-service identifier to a deferred-active-service identifier. *Id.*

In a ninth aspect, the claimed invention provides for generating a service event on the service server to request activation of at least one of the deferred session-based services. *Id.* This step of generating a service event occurs prior to activation of this deferred session-based service. *Id.*

In a tenth aspect, the claimed invention provides for receiving at the second network device from the first network device a service request to deactivate a deferred-session-based service; the service request including the deferred-active-service identifier. *Id.* The claimed invention also

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provides for (i) generating a service event on the service server to request deactivation of the desired service; (ii) deactivating the deferred-session-based service; and (iii) changing the deferred-active-service identifier to a deferred-inactive-service identifier. *Id.*

In an eleventh aspect, the present invention provides for receiving at the second network device from the first network device, after a session is established between the first and second devices, a service request to activate at least one of the deferred session-based services between the service server and the service device. *Id.* at pages 8-10, pages 64-88 (in particular to pages 64-73), and Figures 18-22. In this aspect, the claimed invention also provides for (i) generating, in response to the deferred-inactive-service identifier, a service event on the service server to request activation of the at least one deferred-session-based service; (ii) activating the at least one deferred session-based service using a previously created service-session profile associated with the deferred-inactive-service identifier, and (iii) changing the deferred-inactive-service identifier to a deferred-active-service identifier. *Id.* When the at least one deferred session-based service is activated, a communication link utilizing the service session profile is established between the first and second network devices. *Id.*

In a twelfth aspect, the present invention provides for the second network device receiving from the first network device a service request to deactivate one (or more) of the deferred session-based services occurring between the service server and the service device. *Id.* The service request includes the deferred-active-service identifier associated with the deferred session-based service. *Id.* This deferred-active-service identifier is a complement of the deferred-inactive-service identifier that is registered during initialization with the second network device and associated with the at least one deferred session-based service. *Id.*

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The claimed invention also provides for (i) generating, in response to the deferred-active-service identifier, an event on the service server to request deactivation of the deferred-session-based service; (ii) deactivating the deferred-session-based service; and (iii) changing the deferred-active service identifier to the deferred-inactive-service identifier. *Id.* When the deferred session-based service is deactivated, a communication link utilizing a previously created service session profile is terminated between the first and second network devices. *Id.*

In a thirteenth aspect, the present invention provides for sending to the second network device from the first network device a service request to activate one or more of the deferred session-based service between the service server and one or more of the service devices. *Id.* The service request includes the deferred-inactive-service identifier, as noted above. *Id.* In this aspect, the claimed invention also provides for receiving at the first network device from the second network device a service notification from the service server indicating that the at least one deferred session-based service has been activated. *Id.* When the at least one deferred session-based service is activated, a communication link is established between the first and second network devices. *Id.* The communication link utilizes parameters associated with the plurality of capabilities of the first network device used for carrying out the at least one deferred session-based service. *Id.*

In a fourteenth aspect, the present invention provides for sending from the first network device to the second network device a service request to deactivate one or more deferred session-based services that are occurring between the service server and one or more of the service devices. *Id.* The service request includes the deferred-active-service identifier, which is a complement of the deferred-inactive-service identifier that is registered during initialization with the second network device and associated with the deferred session-based services. *Id.*

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In this aspect, the claimed invention also provides for receiving at the first network device from the service server indicating a service notification that indicates that the deferred session-based services have been deactivated. *Id.* When the deferred session-based services are deactivated, a communication link between the first and second network devices is terminated. *Id.* The communication link utilized parameters associated with the plurality of capabilities of the first network device used for carrying out the at least one deferred session-based service. *Id.*

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VI. ISSUES ON APPEAL

The issues to be decided on this appeal are (i) whether claims 31, 32, 34, 35, 37-45, 47, 49-53, and 60-66 are anticipated under 35 U.S.C. § 102(e), and (ii) whether claims 33, 36, 46, 48, 54, and 55-59 are obvious under 35 U.S.C. § 103(a).

VII. GROUPING OF CLAIMS

As to the rejections of claims 31-66 under 35 U.S.C. § 102(e) and 35 U.S.C. § 103(a), the Appellants identify the following groupings:

Group 1: CLAIMS 31, 32, 34, 35, 37-45, 47, 49-53 and 60-66;

Group 2: CLAIMS 38, 39, 40, 41, 42, 43, 47, 50, 51, 52, 53, 61, 63, and 66;

Group 3: CLAIMS 33, 36, 48, and 56;

Group 4; CLAIMS 46, 54, 57, and 58; and

Group 5: CLAIMS 55 and 59.

Additionally, although Groups 1-5 include multiple claims, the Appellants respectfully assert that each of these claims, specifically addressed, are separately patentable and do not stand or fall together. Reasons in support of this assertion are provided below in the Argument section of this brief.

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VIII. ARGUMENT

The Examiner rejected claims 31, 32, 34, 37-45, 47, 49-53 and 60-66 in the final Office Action as being anticipated by U.S. Patent 6, 223,222 granted to Fijolek et al. ("*Fijolek*") under 35 U.S.C. §102(e). The Examiner also rejected claims 33, 36, 46, 48, 54, and 56-58 under 35 U.S.C §103(a) as being obvious over *Fijolek* and the Examiner's Official Notice. Further, the Examiner rejected claims 55 and 59 under 35 U.S.C. §103(a) as being unpatentable over *Fijolek* in view of U.S. Patent No. 6,337,858 to Petty et al ("*Petty*").

Appellants respectfully assert that the Examiner's rejections do not meet the legal standards required for anticipation under 35 U.S.C. §102(e), nor the legal standards for obviousness under 35 U.S.C. §103(a), as set forth below.

A. The Legal Standard Under 35 U.S.C. §102(e)

A person shall be entitled to a patent unless –

> the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for the purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language

For a claim to be anticipated under 35 U.S.C. § 102, a single prior art reference must disclose all the claimed features of a particular claim, either directly or under principles of inherency. *Kalman v. Kimbery-Clark Corp.*, 713 F.2d 763 (Fed. Cir. 1983). The reference must also be enabling and must describe the claimed invention sufficiently to have placed it in possession of a person of ordinary skill in the field of the invention. *In re Paulsen*, 30 F.3d 1475, 1478-79 (Fed. Cir. 1994). In

addition, "the identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

B. The Legal Standard for obviousness under 35 U.S.C. 103

35 U.S.C. § 103(a) provides that an invention is not patentable:

> if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art.

The test for obviousness is well known. The obviousness inquiry requires:

(1) an inquiry into the scope and content of the prior art;

(2) identification of the differences between the prior art and the claimed invention;

(3) determination of the level of ordinary skill in the art at the time of the invention; and

(4) consideration of objective evidence of secondary considerations indication non-obviousness. Graham v. John Deere Co., 383 U.S. 1, 17 (1966).

The PTO has the burden of establishing a prima facie case of obviousness. In re Fine, 837 F.2d 1071, 1074 (Fed. Cir. 1988). In order to establish the required prima facie case of obviousness of a claimed invention by applying a combination of references, (1) the proposed combination must teach or suggest all of the elements of the claimed invention, (2) the references must expressly or impliedly suggest the claimed invention, and (3) there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. M.P.E.P. § 2143.

It is impermissible, within the framework of § 103, to pick and chose from any one reference only so much of it as will support a given position, to the exclusion of the other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art. *In re*

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Wesslau, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965). In other words, the references must be considered as a whole. *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve Inc.*, 796 F.2d 443, 230 USPQ 416 (Fed. Cir. 1986).

Reasons supporting the separate patentability for each of the above-identified groups of claims are addressed below.

C. GROUP 1 - CLAIMS 31, 32, 34, 35, 37-45, 47, 49-53 and 60-66 ARE NOT ANTICIPATED BY FIJOLEK UNDER 35 U.S.C. §102(e)

1. *Summary of Examiner's Rejection of Independent Claims 31, 34, 37, 49, 60, 62, 64 and 65 under 35 U.S.C. §102(e)*

In the final Office Action mailed January 05, 2004, the Examiner cited *Fijolek* for the proposition that it "teaches a registration process for a cable modem in a data-over-cable system for enabling quality-of-service identifiers." The Examiner also cited *Fijolek* for the proposition that it "teaches during initialization the cable modem registering Class of Service (CoS) and Quality-of-service (QoS) parameters with the CMTS." The Examiner then stated that "the CoS and QoS are not necessarily activated but identified for a later time, as shown in Figure 19, which permits a cable modem to at a later time make a QoS request.

From this, the Examiner concluded that *Fijolek* "teaches, during initialization, receiving parameters associated with a plurality of capabilities used for carrying out at least one deferred session-based service between at least one service device and the cable modem." It was noted, however, the Examiner had not addressed the element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated."

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In the Advisory Action mailed March 30, 2004 in reply to a response by the Appellants, the Examiner addressed the element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated." To this end, the Examiner stated:

> "*Fijolek* teaches the [cable modem termination system] CMTS creating QoS connections without contacting the QoS server (col 39, ll. 4-7), the [cable modem] CM communicates with either the CMTS or QoS server to request bandwidth (col. 40, ll. 39-61). Further, *Fijolek* teaches renewing QoS connections (col. 41-42, ll. 39-16)."

In the Advisory Action, the Examiner stated that claims of the present application do not preclude the above-listed interpretation, but also states that he recognized that the presently claimed invention differs from that of *Fijolek*.

2. *Summary Of Appellant's Arguments That The Examiner's Rejections Under 35 U.S.C 102(e) Are Improper Because The Examiner Has Failed To Show The Cited Reference Teaches The Claimed Elements of Independent Claims 31, 34, 37, 49, 60, 62, 64 and 65*

The Appellants as well as *Fijolek* recognize that during registration (via negotiation with a first device, e.g., a cable modem) a second device, e.g., a QoS server, registers **and** reserves or otherwise allocates the communication resources of the data-over-cable system to carry out session-based services, e.g., quality-of-service connections[1]. The Appellants acknowledge this difference as set forth in the claims. The body of the claims refers to deferred session-based services, while the preamble refers to session-based services. In addition, the preamble of each of the claims reflects that the session-based services allocate communication system resources upon registration. The

[1] For instance, the abstract of *Fijolek* explicitly states that "[t]he quality-of-service server using DHCP messaging provides a standard and efficient process to reserve bandwidth for quality-of-service connections in a data-over-cable system." See also the background of the present application (e.g., page 5, line 10 to page 6, line 19), and *Fijolek* at col. 29, lines 59-67, and cols 33-37.

body of each of the present claims, however, reflects that deferred session-based services are different from session-based services, such as the quality-of-service services described by *Fijolek*.

As claimed, each of the deferred session-based services comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices. Since the deferred session-based services are different from the quality-of-service services described by *Fijolek*, *Fijolek* does not anticipate each claim element associated with such deferred session-based services.

3. Failure to Show the Cited Reference Teaches the Claim Elements of Independent Claims 31, 34, 37, 49, 60, 62, 64 and 65 Directed to Deferred session-based services

The Appellants submit that the Examiner's rejections in the Advisory Action with respect to with respect to the disclosure of *Fijolek* and deferred session-based services are misplaced and taken out of context. The Examiner has impermissibly selected various, inconsistent portions of *Fijolek* to attempt to show the identical invention in as complete detail as is contained in the claims. *See Richardson.*

To support the rejections noted above, the Examiner combined three sections of *Fijolek* without taking into account the disclosure of *Fijolek* directly preceding the cited sections. The Examiner first cites to col. 39, lines 4-7 of *Fijolek* for the proposition that "*Fijolek* teaches the CMTS creating QoS connections without contacting the QoS server." Second, the Examiner cites to col. 40, ll. 39-61 for the proposition that "the CM communicates with either the CMTS or QoS server to request bandwidth." And third, the Examiner cites to col. 41-42, ll. 39-16 for the proposition that "*Fijolek* teaches renewing QoS connections."

Upon review of the first cited section and the context surrounding this section, the antecedent disclosure of *Fijolek* clearly indicates that bandwidth for the QoS requested is allocated upon registration irrespective of the proposition set forth by the Examiner. For instance, in the paragraphs immediately preceding the out of context language, *Fijolek* states:

> "FIG. 24 is a flow diagram illustrating a method 404 for determining quality-of-service. At step 406, a first message is sent with a first protocol from a first network device to a second network device. *The first message includes a request to determine if the first network device has enough available bandwidth to create a connection to a third network device with a specific quality-of-service. The quality-of-service request includes bandwidth for class-of-service, quality-of-service and other parameters.* At step 408, a second message is received on the first network device with the first protocol from the second network device in response to the first message. *The second message is an offer to* ***reserve bandwidth*** *on the first network device for the specific quality-of-service requested.* The second message includes a quality-of-service identifier for the specific quality-of-service requested in an existing message field for the first protocol. *The second message is sent by the second network device with method 336 (FIG. 19), if the first network device has enough available bandwidth to provide a connection with the specific quality-of-service requested. If the first network device does not have enough available bandwidth to provide a connection for the specific quality-of-service requested, the second network device sends a fifth message as a rejection message, indicating no bandwidth is available.* At step 410, a third message is sent with the first protocol from the first network device to the second network device with the quality-of-service identifier in an existing message field. *The third message is a request to reserve bandwidth on the first network device for the specific quality-of-service requested.* At step 412, *a fourth message is received with the first protocol from the second network device on the first network device with the quality-of-service identifier in an existing message field* ***indicating bandwidth for the specific quality-of-service requested by the third network device has been reserved on the second network device.***" *Fijolek*, at col. 38, lines 10-45 (emphasis added).[2]

[2] While the Examiner might argue that this section does not refer to cited section, the Appellants refer the boards to the section of *Fijolek* immediately preceding the cited section. This section states

> "In another embodiment of the present invention, the first network device is CM 16, the second network device is quality-of-service server 402 and the third network device is CMTS 12. In such an embodiment, CM 16 sends quality-of-service requests directly to quality-of-service server 402 with DHCP messaging before sending a registration method to CMTS 12. After obtaining a quality-of-service identifier, CM 16 sends a registration message to CMTS 12." *Fijolek*, at col. 38, line 63 to col. 39, line 3.

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Moreover, this paragraph references method 336 illustrated in Fig. 19, which also discloses that the communication system resources are allocated upon registration. To this end, the specification of *Fijolek* describes the method 336 as follows:

> "FIG. 19 is a flow diagram illustrating a method 336 for providing quality-of-service for a network device in a data over-cable-system. Method 336 includes receiving a request on a first network device from a second network device to establish a connection between the second network device and a third network device with a specific quality-of-service at step 338. The quality-of-service request includes bandwidth for CoS, QoS and other parameters. The first network device determines whether the second network device has enough available bandwidth to establish the connection to the third network device with the specific quality-of-service requested at step 340. The bandwidth determination includes a bandwidth determination required for CoS, QoS and other parameters. If the first network device has enough bandwidth to establish the connection to the third network device with the specific quality-of-service at step 340, **a bandwidth required for the specific quality-of-service is subtracted from an available bandwidth** for the second network device at step 342. At step 344, a quality-of-service identifier is assigned to the specific quality-of-service bandwidth requested. The quality-of-service identifier is assigned based on bandwidth required CoS, QoS and other parameters. The assigned quality-of-service identifier is saved on the first network device at step 346. The assigned quality-of-service identifier is sent to the second network device indicating the second network device has enough bandwidth to allow the connection with the specific quality-of-service requested at step 348. If the first network device does not have enough available bandwidth to establish the connection to the third network device with the specific quality-of-service requested by the third network device at step 340, a rejection is sent to the first network device at step 350" Id., at col 33, lines 35-65 (emphasis added).

In light of the foregoing, the first cited section of *Fijolek* discloses session-based services, and not deferred session-based services, in that the communication resources for the QoS request are allocated upon registration. The second cited section likewise discloses that the communication system resources for the QoS request are allocated upon registration. In this second section, *Fijolek* states:

By the plain language of this paragraph, equating the terms (i) "the first network device" to the "CM 16," (ii) "the second network device" to "quality-of-service server 402," and (iii) "the third network device" to "CMTS 12," clearly indicates that this section refers to a previous section of the specification.

"FIG. 27 is a block diagram illustrating a message flow 428 for quality-of-service requests from CM 16. CM 16 executes the steps of method 414 (FIG. 25) using the same DHCP 66 messages as was described for CMTS 12. CM 16 sends a DHCP 66 discover message 430 to QoS server 402 to determine if CMTS 12 has enough available bandwidth to provide the desired quality-of-service connection requested by CM 16. CM 16 receives a DHCP 66 offer message 432 with a hashed quality-of-service identifier in a DHCP 66 giaddr-field 130 from QoS server 402 via a downstream channel from CMTS 12. CM 16 sends a DHCP request message 434 to QoS server 402 with the hashed quality-of-service identifier obtained the DHCP 66 offer message in a DHCP 66 giaddr-field 130. DHCP 66 request message 434 with the hashed quality-of-service identifier indicates that CM 16 desires to allocate bandwidth on CMTS 12 for the quality-of-service connection requested by CM 16. CM 16 receives a DHCP 66 acknowledgment message 436 from QoS server 402 including the hashed quality-of-service identifier in DHCP 66 giaddr-field 130, and ***indicating that bandwidth for the quality-of-service connection requested by CM 16 has been allocated from available bandwidth on CMTS 12.***" Fijolek, at col. 40, lines 39-61.

Not only does this cited section clearly state that communication system resources for the QoS request are allocated upon registration, but also refers to at least one other section that also clearly shows such allocation. *See, for example, Fijolek* at col. 39, lines 25-65 (illustrating method 414 (Fig. 25) for allocating bandwidth to a QoS connection.)

Like the rest of the cited sections, the third cited section also clearly states that the communication resources for the QoS request are allocated upon registration. Although this section describes dynamic renewal of QoS connections, each time the QoS connections are renewed, communication resources are registered and allocated. *See, for example, Id.*, at col. 41, line 56 to col. 42, line 16.

As noted above and in the background of the present application, allocating communication system resources when registering session-based services has several drawbacks. For example, allocating communication system resources whether or not a given network device is actually using a requested service is a waste of the communication system resources, and prevents other network devices from using resources that are allocated, but are not currently being used. Moreover,

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authentication, authorization or accounting is typically associated with a login request when initiating a session. Requesting additional services after a service session is established may (i) prevent authentication, authorization or accounting from being properly used, (ii) compromise the security of the data-over-cable system, and/or (iii) prevent the data-over-cable system from collecting revenues it is owed for providing access to the service.

By registering, but not allocating communication system resources, the presently claimed invention allows a given network device, which may be embodied as a CMTS, to establish a new session without requiring a power cycle or other re-initialization of another network device, such as a CM, CPE or the like. Further, the communication system resources are not wasted by not allocating them during registration, thereby increasing the efficiency of the data-communication system.

The deferred session-based services provide the ability to dynamically activate session-based services after initialization, and allow authentication, authorization or accounting to be dynamically used after the second network has already established a session. In addition, deferred session-based services provide the ability to dynamically deactivate the deferred session-based services after a session has already been established between the network devices.

4. *Failure to Show that the Cited Reference Teaches the Elements of the Independent Claims 31, 34, 37, 49, 60, 62, 64 and 65 Associated with the Deferred session-based services*

In the Office Action dated January 05, 2004, the Examiner cited pointed to col. 33, lines 35-65 to support his contention that *Fijolek* reads on the presently claimed elements directed to (i) configuring the second network device and the service server for a deferred session-based service; (ii) associating a deferred-inactive-service identifier with a deferred session-based service, wherein the deferred-inactive-service identifier is used to activate the deferred session-based service at the later time; and (iii) exchanging the deferred-inactive-service identifier between the first and second

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network devices, wherein when the deferred session-based service is later activated, a communication link utilizing the parameters is established between the first and second network device. Contrary to the Examiner's assertions, *Fijolek* does not anticipate these claim elements because the claim elements are associated with deferred session-based services and not session-based services, in which the communication network resources are allocated upon registration.

First, *Fijolek* does not anticipate the function of configuring the second network device and the service server for the deferred session-based service. This is because, as illustrated above, *Fijolek* does not teach deferred session-based services, and thus, cannot configure the second network device and the service server for such deferred session-based service. *Id.*, at col. 33, lines 35-65.

Second, the QoS Identifier does not read on the deferred-inactive-service identifier. This is because the QoS Identifier is associated with the QoS already allocated (i.e., session-based services), and not deferred session-based services. *Id.* Thus, while *Fijolek* discloses a QoS identifier for activating the QoS a later time, it does not disclose "associating a deferred-inactive identifier with the at least one deferred session-based service, wherein the deferred-inactive-service identifier is used to activate the at least one deferred session-based service at the later time."

Third, *Fijolek* does not disclose exchanging the deferred-inactive-service identifier between the first and second network devices, wherein when the deferred session-based service is later activated. Like above, this is because *Fijolek* does not disclose deferred session-based services.

In light of above, the Appellants submit that *Fijolek* does not anticipate the claims of Group 1, and their dependents. The dependent claims necessarily include the elements of the independent claims from which they depend, and thus, are not anticipated as well.

5. *Failure to Show that the Cited Reference Teaches the Elements of the Claims 32, 35, 44, and 49 Associated with Later Activating the Deferred-Session-Based Services*

With respect to the elements of claims 32, 35, 44, and 49 directed to activation of the deferred session-based service, the Examiner cites to Fig. 22 and related description in cols. 34-35, ll. 66-25. The Examiner cites this section for the proposition that "*Fijolek* teaches receiving a request for a deferred [session-based service] using a deferred inactive service identifier, [ ] activating the service, and changing the [deferred] inactive service identifier to [a deferred] active [service identifier]." However, this citation does not support such proposition.

The citation supports the following proposition. If a request is received on the CMTS from the CM, and the request includes a request to establish a connection between CMTS and CM with a specific quality-of-service requested by CM, the request is sent to the QoS server to determine whether CMTS has enough bandwidth to establish the connection to CM with the specific quality-of-service requested by CM. See *Fijolek* at col. 35, lines 1-7. Responsive to this relayed request, a response is received on CMTS from QoS server. *Id.* at col. 35, lines 7-8. A test is conducted to determine whether the response contains a quality-of-service identifier for the specific quality-of-service requested by CM. *Id* at col. 35, lines 8-12. The quality-of- service identifier indicates that CMTS has enough available bandwidth to establish the connection. *Id* at col. 35, lines 12-14. If the response contains a quality-of-service identifier, the CMTS creates a connection to CM with the specific quality-of-service requested by CM. *Id* at col. 35, lines 14-17. If the response does not contain a quality-of-service identifier, a rejection is sent from the CMTS to the CM. *Id* at col. 35, lines 17-19.

This is not the same as the clamed invention in which the deferred-inactive-service identifier is sent to the second network device from the first network device, and responsive to the deferred-

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inactive-service identifier, (i) the at least one deferred session-based service between the service server and the service device is activated, and (ii) the deferred-inactive-service identifier is changed to a deferred-active-service identifier[3]. As can be readily discerned from the cited section of *Fijolek*, no deferred-inactive-service identifier is sent from CM and/or CMTS to the QoS server to activate the QoS. And as such, *Fijolek* cannot disclose changing the deferred-inactive-service identifier to a deferred active service identifier. This is because such identifiers do not exist in *Fijolek*.

The QoS identifiers noted in the cited art are different from the presently claimed deferred-inactive-service identifiers. The QoS identifiers are "allocated by QoS server are assigned and grouped *according to the specific quality-of-service requests received.*" *Id.* at col. 36, line 15-17 (emphasis added). "This allocation allows QoS server []to group similar quality-of-service requests in a range of quality-of-service identifiers." *Id.* at col. 36, line 28-30. See also Table 23 *Fijolek*, which illustrates an exemplary grouping of quality-of-service requests. *Fijolek* also states that "[i]in one embodiment of the present invention, QoS server determines bandwidth available on CMTS [] with quality-of-service identifiers assigned to CMTS [] and ***subtracting QoS bandwidth* from an available bandwidth.**" *Id.* at col. 36, lines 44-47. Thus, the QoS identifiers are associated with allocated QoS bandwidth, and not deferred session-based services.

Consequently, the QoS identifiers are not deferred-inactive-service identifiers of the presently claimed. In light of the foregoing, *Fijolek* does not anticipate each claim element of claims 31, 32, 34, 35, 37-45, 47, 49-53 and 60-66.

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[3] Unlike *Fijolek*, the specification of the present application provides details regarding the function of changing the deferred inactive service identifier to a deferred active service identifier. For instance, the specification discloses "the second network device maintains a mapping between deferred inactive service identifier values and deferred active service identifier values." This mapping also allows an inactive service indicated by a deferred inactive service identifier to be activated, and an active service indicated by a deferred active service identifier to be deactivated. An active or inactive service is indicated by a pre-determined service identifier valve. *See the present specification* starting at page 70, line 15.

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D. GROUP 2- CLAIMS 38, 39, 40, 41, 42, 43, 45, 47, 50, 51, 52, 53, 61, 63, and 66 ARE NOT ANTICIPATED BY FIJOLEK UNDER 35 U.S.C. §102(e)

Claims 38, 50, 61, 63 and 66 are dependent from independent claims 37, 49, 60, 62, and 65, respectively. Accordingly, these claims are patentable because all the reasons that *Fijolek* does not anticipate of independent claim independent claims 37, 49, 60, 62, and 65. Although *Fijolek* discloses a computable readable medium having stored therein instructions for causing a central processing unit to execute methods[4], this disclosure does not include *inter alia* the method steps of the presently claimed invention. That is, *Fijolek* does not disclose a computable readable medium having stored therein instructions for causing a central processing unit to carrying out the process steps directed to the deferred session-based services elements of the independent claims 37, 49, 60, 62, and 65.

Claims 39 and 51 are dependent from independent claims 37 and 49, respectively. Accordingly, these claims are patentable because all the reasons that *Fijolek* does not anticipate of independent claim independent claims 37 and 49. Although the specification of *Fijolek* is directed to a data-over-cable system that includes a CM and CMTS[5], this disclosure does not include *inter alia* the CM and CMTS involved in carrying out the method steps of the presently claimed invention. For example, *Fijolek* does not disclose a CM and CMTS associate with carrying out the process steps directed to the deferred session-based services elements of the independent claims 37 and 49.

Claims 40 and 52 are likewise dependent from independent claims 37 and 49, respectively. Consequently, these claims are patentable because all the reasons that *Fijolek* does not anticipate of independent claim independent claims 37 and 49. Even though the specification of *Fijolek* discloses a SID (which the Examiner has stated reads on the deferred-inactive-service identifier embodied as a

[4] See, for example, claims 2, 16, 25 and 30 of *Fijolek*.
[5] See the entire specification of *Fijolek*.

Medium Access Control (MAC) Protocol Service Identifier), this SID is not the deferred-inactive-service identifier of the presently claimed invention. The SID disclosed in *Fijolek* is associated with the above-mentioned session-based services, e.g., quality-of-service connections, and distinguished from the deferred session-based services by language in the preamble and body of the present claims. In light of above, the deferred session-based services are different from the session described by *Fijolek*, and thus, *Fijolek* does not anticipate each claim element associated with such deferred session-based services.

Claims 41, 42, 43, 47 and 53 are ultimately dependent from independent claims 37, 37, 37, 37, and 49, respectively. Accordingly, these claims are patentable because all the reasons that *Fijolek* does not anticipate of independent claim independent claims 37, and 49. While the specification of *Fijolek* discloses CoS parameters, registration and response messages, Type-length-value format encoding, and authentication, authorization and accounting events, the *Fijolek* disclosure fails to teach these claim elements associated with carrying out the method steps of the presently claimed invention. That is, *Fijolek* does not disclose CoS parameters, registration and response messages, Type-length-value format encoding, and authentication, authorization and accounting events for carrying out the process steps directed to the deferred session-based services elements of the independent claims 37, 49, and any intervening claims.

Claim 45 is dependent from independent claim 37, and thus is patentable because all the reasons that *Fijolek* does not anticipate of independent claim independent claim 37. However, the specification of *Fijolek* does not disclose the step of "generating a service event on the service server to request activation of the at least one deferred session-based service" because, as noted above *Fijolek* fails to teach the claimed elements involved in carrying out the process steps directed to the deferred session-based services.

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E. GROUP 3-CLAIMS 33, 36, 48, AND 56 ARE NOT OBVIOUS UNDER 35 U.S.C. §103(a) OVER FIJOLEK IN VIEW OF THE EXAMINER'S OFFICIAL NOTICE

1. Summary of Examiner's Rejection of Claims 33, 36, 48, and 56 under 35 U.S.C. §103(a) Over Fijolek In View Of the Examiner's Official Notice

The Examiner cites *Fijolek* for the proposition that it teaches all the elements of claims 33, 36, 48 and 56. The Examiner, however, admits that *Fijolek* is silent on (i) receiving a request for deactivating an active deferred session-based service, (ii) changing an active deferred session-based service to inactive in response receiving the request to deactivating an active deferred session-based service, and (iii) changing a deferred-active-service identifier to a deferred-inactive-service identifier in response to deactivating the active deferred session-based service.

To support the *prima facie* case of obviousness, the Examiner takes Official Notice that DHCP Release is well known in the art. The Examiner then states, "[t]herefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify *Fijolek* by releasing a service in order to free the service and efficiently manage the bandwidth."

2. Summary Of Appellant's Arguments That The Examiner's Rejections Under 35 U.S.C 103(à) Are Improper Because The Examiner Has Failed To Establish a Prima Facie Case of Obviousness of Claims 33, 36, 48, and 56

The Appellants submit that the Examiner has failed to establish the required *prima facie* case of obviousness of a claimed invention by applying the combination of *Fijolek* and the Official Notice. This is because, firstly, the combination of *Fijolek* and the Official Notice does not teach or suggest all of the elements of the claimed invention. Specifically, the combination of *Fijolek* and the Official Notice does not teach or suggest *inter alia* the elements of the claims directed to deferred session-based services as discussed above. Secondly, combination of *Fijolek* and the Official Notice does not expressly or impliedly suggest what the Applicants of the present application have done. And lastly, the Examiner has failed to show some suggestion or motivation, either in the references

themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to do what the Applicants have done.

3. Failure to Show the Combination of Fijolek and the Examiner's Official Notice Teaches all of the Claim Elements of Claims 33, 36, 48, and 56

The Appellants submit that *Fijolek* and the Official Notice, either alone or combined, fail to teach the combination of elements of claims 33, 36, 48, and 56. Specifically, the Appellants submit that the neither *Fijolek* or the Official Notice alone or combined teach, explicitly or implicitly, element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated."

The Appellants note that the Examiner has relied on *Fijolek* to support rejection of the claimed elements directed element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated." The Appellants also note that the Examiner has taken Official Notice for the proposition that it teaches (i) receiving a request for deactivating an active deferred session-based service, (ii) changing an active deferred session-based service to inactive in response receiving the request to deactivating an active deferred session-based service, and (iii) changing a deferred-active-service identifier to a deferred-inactive-service identifier in response to deactivating the active deferred session-based service.

The Appellants incorporate herein by reference the arguments raised under the section headings "Group 1 - Claims 31, 32, 34, 35, 37-45, 47, 49-53 And 60-66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)" and "Group 2- Claims 38, 39, 40, 41, 42, 43, 45, 47, 50, 51, 52,

53, 61, 63, And 66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)." In light of the arguments presented under these headings, the Appellants submit that (1) the base reference (i.e., *Fijolek*) does not disclose explicitly or inherently the combination of claimed elements directed to the deferred session-based services, and (2) the second reference (i.e., Official Notice) likewise fails to disclose such subject matter.

Consequently, the Appellants submit that these references either alone or combined, fail to disclose or suggest, the combination of claimed elements. Thus, the Examiner has not established a *prima facie* case of obviousness.

4. Failure to Show that Fijolek and the Examiner's Official Notice Expressly or Impliedly Suggests the Claimed Invention of Claims 33, 36, 48, and 56

The Appellants submit that the not only does the combination of *Fijolek* and the Official Notice fail to disclose the claimed elements of claims 33, 36, 48, and 56 noted above, but also the references fail to suggest claimed invention as a whole. Assuming, for the sake of an argument, that the *Fijolek* teaches all the elements of the claims except for (i) receiving a request for deactivating an active deferred session-based service, (ii) changing an active deferred session-based service to inactive in response receiving the request to deactivating an active deferred session-based service, and (iii) changing a deferred-active-service identifier to a deferred-inactive-service identifier in response to deactivating the active deferred session-based service.

Instead, the Examiner relies on the Official Notice to reject these claim elements. The Appellants note, however, that the Official Notice even when combined with *Fijolek* fail to do what the Applicants have done or even have a reasonable expectation of success of doing what the Applicants have done. This is because DHCP Release does not describe explicitly or impliedly deferred session-based services. DHCP Release is directed to dynamically releasing Internet Protocol Addresses, and

not deferred session-based services. Thus, combining *Fijolek* with the Official Notice does not provide (i) receiving a request for deactivating an active deferred session-based service, (ii) changing an active deferred session-based service to inactive in response receiving the request to deactivating an active deferred session-based service, and (iii) changing a deferred-active-service identifier to a deferred-inactive-service identifier in response to deactivating the active deferred session-based service.

At best, the combination of Fijolek and the Official Notice would produce the system already described in *Fijolek*. *See Fijolek* at starting at col. 14 (describing DHCP configuration on a Data-over-Cable System). Thus, the combination of *Fijolek* and the Official Notice do not expressly or impliedly suggest the claimed invention, and Examiner has not established a *prima facie* case of obviousness with respect to claims 33, 36, 48, and 56.

5. *Failure to Provide an Objective Reason to Combine Fijolek and the Examiner's Official Notice With Respect to Claims 33, 36, 48, and 56*

As noted above, In addition to the other requirements, in order to establish the required *prima facie* case of obviousness of a claimed invention by applying a combination of references, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The mere fact that references can be combined or modified does not render the resultant combination obvious unless *the prior art* also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis added).

In addition, "a statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually

known in the art is *not sufficient* to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references." *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000)[6] (emphasis added).

The Appellants respectfully submit that the Examiner has not provided a well-reasoned statement showing some suggestion of the desirability of doing what the Applicants have done. Without providing any reference or convincing reasoning, the Examiner, using impermissible hindsight and language similar to the above-quoted language held to be insufficient to establish a *prima facie* case of obviousness, states only that the purpose to combine *Fijolek* and the Official Notice is "to modify *Fijolek* by releasing a service in order to free the service and efficiently manage bandwidth."

The Appellants note that both *Fijolek* and the Official Notice do not disclose such assertion, and thus, do not provide the suggestion or motivation to combine the references for the purpose of "modify[iing] *Fijolek* by releasing a service in order to free the service and efficiently manage bandwidth." As such, the Examiner must provide a convincing line of reasoning that shows that the knowledge generally available to one of ordinary skill in the art at the time of invention would provide the suggestion or motivation to combine the teachings of *Fijolek* and the Official Notice. The Appellants submit that the Examiner has not done so.

The bald assertion that combining the references for the purpose of "modify[iing] *Fijolek* by releasing a service in order to free the service and efficiently manage bandwidth." is as meaningful as saying the combination is obvious because it "makes the system better;" which like the cited

[6] See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (Court reversed obviousness rejection involving technologically simple concept because there was no finding as to the principle or specific understanding within the knowledge of a skilled artisan that would have motivated the skilled artisan to make the claimed invention); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ2d 1161 (Fed. Cir. 1999) (The level of skill in the art cannot be relied upon to provide the suggestion to combine references.).

purpose does not provide a suggestion or motivation to combine the teachings of *Fijolek* and the Official Notice. Specifically, simply stating that the combination would "improve the system" does not point to combining the supposed elements contained in *Fijolek* and the Official Notice to obtain the Applicants' invention. Thus, the Examiner has not provided a well-reasoned basis for the combination.

Moreover, "improving the system" does not show how the teachings of *Fijolek* and the Official Notice to produce the claimed invention. At most, "improving the system" provides a reason for applying for a patent in the first place. That is, many patentable inventions are based on the recognition that a specific combination of elements (which may appear individually, but not in combination, in the prior art) will result in an improved system. Thus, because of the absence of any evidence of a motivating force, the Applicants submit that the Examiner has failed to meet the initial burden of providing a *prima facie* case of obviousness.

F. GROUP 4- CLAIMS 46, 54, 57, AND 58 ARE NOT OBVIOUS UNDER 35 U.S.C. §103(a) OVER FIJOLEK IN VIEW OF THE EXAMINER'S OFFICIAL NOTICE

1. *Summary of Examiner's Rejection of Claims 46 and 54 under 35 U.S.C. §103(a) Over Fijolek In View Of the Examiner's Official Notice*

The Examiner cites *Fijolek* for the proposition that it teaches all the elements of claims 33, 36, 48 and 56, except that Fijolek is silent on teaching a Remote Authentication Dial-in User Server (RADIUS). To support the *prima facie* case of obviousness, the Examiner takes Official Notice that RADIUS is well known in the art. The Examiner then states, "[t]herefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify *Fijolek* using RADIUS to support Dial-in connections for the users, thereby supporting multiple interfaces."

2. *Summary Of Appellant's Arguments That The Examiner's Rejections Under 35 U.S.C 103(a) Are Improper Because The Examiner Has Failed To Establish a Prima Facie Case of Obviousness of Claims 46 and 54*

The Appellants submit that the Examiner has failed to establish the required *prima facie* case of obviousness of a claimed invention by applying the combination of *Fijolek* and the Examiner's Official Notice. This is because the combination of *Fijolek* and the Official Notice does not teach or suggest all of the elements of the claimed invention, and specifically the elements of the claims directed to deferred session-based services as discussed above. In addition, the Examiner has failed to show some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings to do what the Applicants have done.

3. *Failure to Show the Combination of Fijolek and the Examiner's Official Notice Teaches all of the Claim Elements of Claims 46 and 54*

The Appellants submit that *Fijolek* and the Official Notice, either alone or combined, fail to teach the combination of elements of claims 46 and 54. Specifically, the Appellants submit that the neither *Fijolek* or the Official Notice alone or combined teach, explicitly or implicitly, *inter alia* element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated."

The Appellants note that the Examiner has relied on *Fijolek* to support rejection of the claimed elements directed element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later

activated." The Appellants also note that the Examiner has taken Official Notice for the proposition that it teaches RADIUS, and not the claimed elements for which the Examiner relies on *Fijolek*.

The Appellants incorporate herein by reference the arguments raised under the section headings "Group 1 - Claims 31, 32, 34, 35, 37-45, 47, 49-53 And 60-66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)" and "Group 2- Claims 38, 39, 40, 41, 42, 43, 45, 47, 50, 51, 52, 53, 61, 63, And 66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)." In light of the arguments presented under these headings, the Appellants submit that (1) the base reference (i.e., *Fijolek*) does not disclose explicitly or inherently the combination of claimed elements directed to the deferred session-based services, and (2) the second reference (i.e., Official Notice) likewise fails to disclose such subject matter.

Consequently, the Appellants submit that these references either alone or combined, fail to disclose or suggest, the combination of claimed elements. Thus, the Examiner has failed to establish a *prima facie* case of obviousness.

4. *Failure to Provide an Objective Reason to Combine Fijolek and the Examiner's Official Notice With Respect to Claims 46 and 54*

As noted above, in order to establish the required *prima facie* case of obviousness of a claimed invention by applying a combination of references, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. The mere fact that references can be combined or modified does not render the resultant combination obvious unless <u>the prior art</u> also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990) (emphasis added).

In addition, "a statement that modifications of the prior art to meet the claimed invention would have been 'well within the ordinary skill of the art at the time the claimed invention was made' because the references relied upon teach that all aspects of the claimed invention were individually known in the art is *not sufficient* to establish a prima facie case of obviousness without some objective reason to combine the teachings of the references." *Ex parte Levengood*, 28 USPQ2d 1300 (Bd. Pat. App. & Inter. 1993). See also *In re Kotzab*, 217 F.3d 1365, 1371, 55 USPQ2d 1313, 1318 (Fed. Cir. 2000) (emphasis added).

The Appellants respectfully submit that the Examiner has not provided a well-reasoned statement showing some suggestion of the desirability of doing what the Applicants have done. Without providing any reference or convincing reasoning, the Examiner, using impermissible hindsight and language similar to the above-quoted language held to be insufficient to establish a *prima facie* case of obviousness, states only that the purpose to combine *Fijolek* and the Official Notice is "to modify *Fijolek* using RADIUS to support Dial-in connections for the users, thereby supporting multiple interfaces."

The Appellants note that both *Fijolek* and the Official Notice do not disclose such assertion, and thus, do not provide the suggestion or motivation to combine the references for the purpose of "modify[ing] *Fijolek* using RADIUS to support Dial-in connections for the users, thereby supporting multiple interfaces." As such, the Examiner must provide a convincing line of reasoning that shows that the knowledge generally available to one of ordinary skill in the art at the time of invention would provide the suggestion or motivation to combine the teachings of *Fijolek* and the Official Notice. The Appellants submit that the Examiner has not done so.

The bald assertion that combining the references for the purpose of "modify[ing] *Fijolek* using RADIUS to support Dial-in connections for the users, thereby supporting multiple interfaces" is as

meaningful as saying the combination is obvious because it "makes the system better;" which like the cited purpose does not provide a suggestion or motivation to combine the teachings of *Fijolek* and the Official Notice. Specifically, simply stating that the combination would "improve the system" does not point to combining the supposed elements contained in *Fijolek* and the Official Notice to obtain the Applicants' invention.

Thus, the Examiner has not provided a well-reasoned basis for the combination. And because of the absence of any evidence of a motivating force, the Applicants submit that the Examiner has failed to meet the initial burden of providing a *prima facie* case of obviousness.

5. *Failure to Show the Combination of Fijolek and the Examiner's Official Notice Teaches all of the Claim Elements of Claims 57and 58*

The Appellants submit that *Fijolek* and the Official Notice, alone or combined, fail to teach the combination of elements of claims 57 and 58, which depend from independent claim 56. Specifically, the Appellants submit that the neither *Fijolek* or the Official Notice alone or combined teach, explicitly or implicitly, element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated."

The Appellants note that the Examiner has relied on *Fijolek* to support rejection of the claimed elements directed element(s) of the independent claim 56 directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated." The Appellants also note that the Examiner has taken Official Notice for the proposition that it teaches the claimed elements directed to (i) receiving a request for deactivating an active

deferred session-based service, (ii) changing an active deferred session-based service to inactive in response receiving the request to deactivating an active deferred session-based service, and (iii) changing a deferred-active-service identifier to a deferred-inactive-service identifier in response to deactivating the active deferred session-based service.

The Appellants incorporate herein by reference the arguments raised under the section headings "Group 1 - Claims 31, 32, 34, 35, 37-45, 47, 49-53 And 60-66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)" and "Group 2- Claims 38, 39, 40, 41, 42, 43, 45, 47, 50, 51, 52, 53, 61, 63, And 66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)." In light of the arguments presented under these headings, the Appellants submit that (1) the base reference (i.e., *Fijolek*) does not disclose explicitly or inherently the combination of claimed elements directed to the deferred session-based services, and (2) the second reference (i.e., Official Notice) likewise fails to disclose such subject matter. Consequently, the Appellants submit that these references either alone or combined, fail to disclose or suggest, the combination of claimed elements.

G. GROUP 5- CLAIMS 55 AND 59 ARE NOT OBVIOUS UNDER 35 U.S.C. §103(a) OVER FIJOLEK IN VIEW OF PETTY

1. *Summary of Examiner's Rejection of Claims 55 and 59 under 35 U.S.C. §103(a) Over Fijolek In View Of Petty*

The Examiner cites *Fijolek* for the proposition that it teaches all the elements of claims 33, 36, 48 and 56, except that Fijolek is silent on teaching Voice-over-Internet Protocol (VoIP). In attempting to establish a *prima facie* case of obviousness, the Examiner relies on *Petty* for the teachings of VoIP in a Data-over-Cable system The Examiner then states, "[t]herefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify [~~DOCSIS~~]*Fijolek* using by supporting VoIP as taught by Petty in order to enable the user to have phone conversations without using the Plain Old Telephone Service (POTS) system."

2. *Summary Of Appellant's Arguments That The Examiner's Rejections Under 35 U.S.C 103(a) Are Improper Because The Examiner Has Failed To Establish a Prima Facie Case of Obviousness of Claims 55 and 59*

The Appellants submit that the Examiner has failed to establish the required *prima facie* case of obviousness of a claimed invention by applying the combination of *Fijolek* and *Petty*. This is because the combination of *Fijolek* and *Petty* does not teach or suggest all of the elements of the claimed invention, and specifically the elements of the claims directed to deferred session-based services as discussed above.

3. *Failure to Show the Combination of Fijolek and the Examiner's Official Notice Teaches all of the Claim Elements of Claims 46 and 54*

The Appellants submit that *Fijolek* and *Petty*, alone or combined, fail to teach the combination of elements of claims 55 and 59. Specifically, the Appellants submit that the neither *Fijolek* or *Petty* alone or combined teach, explicitly or implicitly)\, element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated."

The Appellants note that the Examiner has relied on *Fijolek* to support rejection of the claimed elements directed element(s) of the claims directed to "a deferred session-based service compris[ing] a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated." The Appellants also note that the Examiner cites Petty for the proposition that it VoIP.

The Appellants incorporate herein by reference the arguments raised under the section headings "Group 1 - Claims 31, 32, 34, 35, 37-45, 47, 49-53 And 60-66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)" and "Group 2- Claims 38, 39, 40, 41, 42, 43, 45, 47, 50, 51, 52,

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53, 61, 63, And 66 Are Not Anticipated By Fijolek Under 35 U.S.C. §102(e)." In light of the arguments presented under these headings, the Appellants submit that (1) the base reference (i.e., *Fijolek*) does not disclose explicitly or inherently the combination of claimed elements directed to the deferred session-based services, and (2) the second reference (i.e., *Petty*) likewise fails to disclose such subject matter. Consequently, the Appellants submit that these references either alone or combined, fail to disclose or suggest, the combination of claimed elements.

H. CONCLUSION

For the reasons set forth above, Appellants respectfully submit that the outstanding rejections of the claims on anticipation and obviousness grounds are in error and should be reversed. The Appellants also submit that the application is in good and proper form for allowance, and respectfully request allowance of the present application.

Respectfully submitted,

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IX. APPENDIX A (PENDING CLAIMS)

31. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, and wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, a method for providing dynamic services comprising the steps of:

receiving during initialization at the second network device a registration message from the first network device containing parameters associated with a plurality of capabilities of the first network device used for carrying out at least one deferred session-based service between at least one service device associated with the first network device and a service server associated with the second network device, wherein each of the at least one deferred session-based service comprises a service for which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices;

configuring the second network device and the service server for the at least one deferred-session-based service;

associating a deferred-inactive-service identifier with the at least one deferred session-based service, wherein the deferred-inactive-service identifier is used to activate the at least one deferred session-based service at the later time; and

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sending the deferred-inactive-service identifier to the first network device, wherein when the at least one deferred session-based service is later activated, a communication link utilizing the parameters is established between the first and second network devices.

32. (Previously presented) The method of claim 31, further comprising the steps of:

receiving at the second network device from the first network device the deferred-inactive-service identifier;

responsive to the deferred-inactive-service identifier, activating the at least one deferred session-based service between the session server and the service device; and

changing the deferred-inactive-service identifier to a deferred-active-service identifier.

33. (Previously presented) The method of claim 32, further comprising the steps of:

receiving at the second network device from the first network device the deferred-active-service identifier;

responsive to the deferred-active-service identifier, deactivating the at least one deferred session-based service between the session server and the service device; and

changing the deferred-active-service identifier to a deferred-inactive-service identifier.

34. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, and wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, a method for providing dynamic services comprising the steps of:

sending during initialization from the first network device to the second network device a registration message containing parameters associated with a plurality of capabilities of the first network device used for carrying out at least one deferred session-

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based service between at least one service device associated with the first network device and a service server associated with the second device, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices, and wherein a deferred-inactive-service identifier is associated with the at least one deferred session-based service, and wherein the deferred-inactive-service identifier is used to activate the at least one deferred session-based service at the later time; and

receiving at the first network device from the second network device the deferred-inactive-service identifier, wherein when the at least one deferred session-based service is later activated, a communication link utilizing the parameters is established between the first and second network devices.

35. (Previously presented) The method of claim 34, further comprising the steps of:

sending to the second network device from the first network device the deferred-inactive-service identifier; wherein in response to the deferred-inactive-service identifier, the at least one deferred session-based service between the service server and the service device is activated; and wherein the deferred-inactive-service identifier is changed to a deferred-active-service identifier.

36. (Previously presented) The method of claim 35, further comprising the steps of:

sending to the second network device from the first network device the deferred-active-service identifier; wherein responsive to the deferred-active-service identifier, the at

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least one deferred session-based service between the service server and the service device is deactivated; and wherein the deferred-active-service identifier is changed to a deferred-inactive-service identifier.

37. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, and wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, a method for providing dynamic services comprising the steps of:

the second network device receiving a first message from the first network device, wherein the first message includes parameters associated with a plurality of capabilities of the first network device used for carrying out at least one deferred session-based service between a service server associated with the second network device and a service device associated with the first network device, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices;

extracting the parameters from the first message;

creating a service-session profile for the at least one deferred session-based service, wherein the service-session profile includes one or more of the parameters;

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using the service-session profile to configure the service server and the second network device for the at least one deferred session-based service for activation at a later time;

associating the service-session profile with a deferred-inactive-service identifier, wherein the deferred-inactive-service identifier is used to activate the at least one deferred session-based service at the later time; and

sending the deferred-inactive-service identifier to the first network device in a second message, wherein when the deferred-inactive-service identifier is used to later activate the at least one deferred session-based service, a communication link utilizing the service session profile is established between the first and second network devices.

38. (Previously presented) A computer readable medium having stored therein instructions for causing a central processing unit to execute the method of claim 37.

39. (Previously presented) The method of claim 37, wherein the first network device is a cable modem and the second network device is a cable modem termination system.

40. (Previously presented) The method of claim 37, wherein the deferred inactive service identifier is a Medium Access Control Protocol service identifier.

41. (Previously presented) The method of claim 37, wherein the parameters include any of quality-of-service, class-of-service, type-of-service or voice service parameters.

42. (Previously presented) The method of claim 37, wherein the first message is a registration message and the second message is a registration response message.

43. (Previously presented) The method of claim 37, wherein the deferred-inactive-service identifier is encoded in a Type-Length-Value format.

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44. (Previously presented) The method of claim 37, further comprising the steps of:

the second network device receiving from the first network device a service request to activate the at least one deferred session-based service, wherein the service request includes the deferred-inactive-service identifier;

responsive to the deferred-inactive-service identifier, activating the at least one deferred session-based service between the service server and the service device; and

changing the deferred-inactive-service identifier to a deferred-active-service identifier.

45. (Previously presented) The method of claim 37, further comprising the step of generating a service event on the service server to request activation of the at least one deferred session-based service, wherein the step of generating a service event occurs prior to activation of the at least one deferred session-based service.

46. (Previously presented) The method of claim 44, wherein the service server is any of a Remote Authentication Dial In User Server, a Voice over Internet Protocol server, Asynchronous Transport Mode Server, Frame Relay Server, or an Integrated Services Digital Network server, or an Asymmetric Digital Subscriber Line server.

47. (Previously presented) The method of claim 45, wherein the step of generating a service event includes generating any of an authentication, authorization or an accounting event.

48. (Previously presented) The method of claim 37, further comprising the steps of:

the second network device receiving from the first network device a service request to deactivate at least one deferred session-based service, wherein the service request includes the deferred-active-service identifier;

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generating a service event on the service server to request deactivation of the desired service;

deactivating the at least one deferred-session-based service; and

changing the deferred-active-service identifier to a deferred-inactive-service identifier.

49. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, and wherein a session is established between the first and second devices, a method for providing dynamic services comprising the steps of:

the second network device receiving from the first network device a service request to activate at least one deferred session-based service between a service server associated with the second network device and a service device associated with the first network device, wherein the service request includes a deferred-inactive-service identifier that is registered with the second network device during initialization and associated with the at least one deferred session-based service, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices;

responsive to the deferred-inactive-service identifier, generating a service event on the service server to request activation of the at least one deferred-session-based service;

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activating the at least one deferred session-based service using a previously created service-session profile associated with the deferred-inactive-service identifier; and

changing the deferred-inactive-service identifier to a deferred-active-service identifier, wherein when the at least one deferred session-based service is activated, a communication link utilizing the service session profile is established between the first and second network devices.

50. (Previously presented) A computer readable medium having stored therein instructions for causing a central processing unit to execute the method of claim 53.

51. (Previously presented) The method of claim 49, wherein the first network device is a cable modem and the second network device is a cable modem termination system.

52. (Previously presented) The method of claim 49, wherein the deferred-inactive-service identifier is a Medium Access Control Protocol service identifier and the deferred-active-service identifier is a Medium Access Control Protocol Service identifier.

53. (Previously presented) The method of claim 49, wherein the step of generating a service event includes generating any of an authentication, authorization or an accounting event.

54. (Previously presented) The method of claim 49, wherein the service server is any of a Remote Authentication Dial In User Server, a Voice over Internet Protocol server, Asynchronous Transport Mode Server, Frame Relay Server, an Integrated Services Digital Network server, or an Asymmetric Digital Subscriber Line server.

55. (Previously presented) The method of claim 49, wherein the service request is a Voice over Internet Protocol off-hook request.

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56. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, and wherein a session is established between the first and second devices, a method for providing dynamic services comprising the steps of :

a second network device receiving from a first network device a service request to deactivate at least one deferred session-based service occurring between a service server associated with the second network device and a service device associated with the first network device, wherein the service request includes a deferred-active-service identifier, wherein the deferred-active-service identifier is a complement of a deferred-inactive-service identifier that is registered during initialization with the second network device and associated with the at least one deferred session-based service, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service was later activated, and activation of the at least one deferred session-based service occurred after a session was established between the first and second devices;

responsive to the deferred-active-service identifier, generating an event on the service server to request deactivation of the at least one deferred-session-based service;

deactivating the at least one deferred-session-based service; and

changing the deferred-active service identifier to the deferred-inactive-service identifier, wherein when the at least one deferred session-based service is deactivated, a

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communication link utilizing a previously created service session profile is terminated between the first and second network devices.

57. (Previously presented) A computer readable medium having stored therein instructions for causing a central processing unit to execute the method of claim 56.

58. (Previously presented) The method of claim 56, wherein the deferred-active-service identifier is a Medium Access Control Protocol service identifier and the deferred-inactive-service identifier is a Medium Access Control Protocol service identifier.

59. (Previously presented) The method of claim 56, wherein the service request is a Voice over Internet Protocol on-hook request.

60. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, and wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, a method for providing dynamic services comprising the steps of:

the first network device sending to the second network device a service request to activate at least one deferred session-based service between a service server associated with the second network device and a service device associated with the first network device, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices, and wherein the service request

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includes a deferred-inactive-service identifier that is registered with the second network device during initialization and associated with at least one deferred-session-based service; and

the first network device receiving from the second network device a service notification from the service server indicating that the at least one deferred session-based service has been activated, wherein when the at least one deferred session-based service is activated, a communication link is established between the first and second network devices, and wherein the communication link utilizes parameters associated with the plurality of capabilities of the first network device used for carrying out the at least one deferred session-based service.

61. (Previously presented) A computer readable medium having stored therein instructions for causing a central processing unit to execute the methods of claim 60.

62. (Previously presented) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes first and second network devices, wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, and wherein a session is established between the first and second devices, a method for providing dynamic services comprising the steps of:

a first network device sending a service request to a second network device to deactivate at least one deferred session-based service occurring between a service server associated with the second network device and a service device associated with the first network device, wherein the service request includes a deferred-active-service identifier, wherein the deferred-active-service identifier is a complement of a deferred-inactive-service

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identifier that is registered during initialization with the second network device and associated with the at least one deferred session-based service, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service was later activated, and activation of the at least one deferred session-based service occurred after a session was established between the first and second devices; and

the first network device receiving a service notification from the service server indicating that the at least one deferred session-based service has been deactivated, wherein when the at least one deferred session-based service is deactivated, a communication link between the first and second network devices is terminated, and wherein the communication link utilized parameters associated with the plurality of capabilities of the first network device used for carrying out the at least one deferred session-based service.

63. (Previously presented) A computer readable medium having stored therein instructions for causing a central processing unit to execute the method of claim 62.

64. (Previously presented) A system for providing dynamic services to a network device in data communication system, wherein the system includes first and second network devices, and wherein during initialization, communication system resources for carrying out session-based services are registered with and allocated by the second network device, the system comprising in combination:

the second network device providing at least one deferred session-based service between a service device associated with the first network device and a service server associated with the second network device, wherein each of the at least one deferred

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session-based service comprises a service in which communication system resources are registered with, but not allocated by the second network device until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the first and second devices;

a service-session profile including parameters associated with a plurality of capabilities of the first network device used for carrying out the at least one deferred session-based service, wherein the service-session profile is used for configuring the second network device and the service server for the at least one deferred session-based service, and wherein when the at least one deferred session-based service is later activated, a communication link utilizing the service session profile is established between the first and second network devices;

a deferred-inactive-service identifier associated with the service-session profile for later activating a previously-configured at least one deferred-session-based service;

a deferred-active-service identifier created from the deferred-inactive-service identifier for indicating that the at least one deferred session-based service is active; and

a service event generator for generating a service event on the service server to request activation of the at least one deferred session-based service.

65. (Currently amended) In a data communication system including a plurality of network devices, wherein the plurality of network devices includes ~~first and second network devices~~ a cable modem termination system and a cable modem, and wherein during initialization, communication system resources for carrying out session-based services are registered with

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and allocated by the second network device, a method for providing dynamic services comprising the steps of:

~~a~~ the cable modem termination system receiving from ~~a~~ the cable modem during initialization a registration message, wherein the registration message includes parameters associated with a plurality of capabilities of the cable used for carrying out at least one deferred session-based service between a service server associated with the cable modem termination system and a service device associated with the cable modem, wherein each of the at least one deferred session-based service comprises a service in which communication system resources are registered with, but not allocated by the cable modem termination system until the at least one deferred session-based service is later activated, and activation of the at least one deferred session-based service is operable to occur after a session is established between the cable modem and cable modem termination system;

extracting the parameters from the registration message;

creating a service-session profile for the at least one deferred session-based service, wherein the service-session profile includes one or more of the parameters;

using the service-session profile to configure the cable modem termination system and the service server for the at least one deferred-session-based service;

associating the service-session profile with one or more deferred-inactive-medium-access-control-protocol-service identifiers, wherein the one or more deferred-inactive-medium-access-control-protocol-service identifiers are used by the service device to activate the at least one deferred session-based service, and wherein the one or more deferred-inactive-medium-access-control-protocol-service identifiers are used by the service servers to generate events for requesting activation of the at least one deferred-session-based service; and

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sending the one or more deferred-inactive-medium-access-control-protocol-service identifiers to the cable modem in a registration response message, wherein when the at least one deferred session-based service is later activated, a communication link utilizing the service-session profile is established between the cable modem and the cable modem termination system.

66. (Previously presented) A computer readable medium having stored therein instructions for causing a central processing unit to execute the method of claim 65.